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Donor lifestyle key to transplant odds

By **ANGUS HOWARTH**

The success of a kidney transplant may depend more on the lifestyle of the organ donor than the stress caused by the transplant procedure itself, according to Scottish scientists.

The team at the University of Glasgow have identified a "molecular signature" for what they describe as "wear and tear" to the organs, a phenomenon known as "allostatic load" which explains why some transplants do not work as well as expected.

The wear and tear, they say, is caused by repeated and chronic stress and reflects an individual's "burden of lifestyle and life events".

The study, published in the Aging Cell journal, analysed transplanted kidneys which developed delayed graft function (DGF), which occurs when the organ fails to work after transplantation, and the patient has to be dialysed.

Previously, the scientists demonstrated that the biological age of transplanted kidneys was important for how well a kidney worked following transplantation, but it was not known why DGF, and the resulting impaired kidney function, occurred.

The scientists have now found that, at a molecular level, the kidneys studied displayed a greater magnitude of change in key genes, and elevated expression of features of ageing, consistent with increased allostatic load, or wear and tear.

Paul Shiels, professor of geroscience, said: "We now have strong evidence that an organ's biological age, in combination with physiological stress, plays a major role in DGF, or impaired function, occurring. The findings also suggest that these effects are driven by donor characteristics, which may be more of a factor than transplant stress itself.

"Our findings are important because, not only have we identified the reason why some kidney transplants don't work when transplanted, we also demonstrate that miles on the biological clock affect the physiological function of organs.

"This isn't just clinically important, but is also relevant to how we age and how we can maintain good health in old age."

Deaths due to chronic kidney disease (CKD) have increased globally, as well as the number of people reaching old age, bringing with it a major burden of age-related morbidities.

An estimated 10 to 12 per cent of the world's adults is affected by CKD and although a large proportion is distributed among the elderly, CKD occurs across all age groups. Transplantation remains the best option for these individuals as their kidneys eventually fail.

The study was carried out in collaboration with surgeons from NHS Greater Glasgow & Clyde and was funded by a collaborative research award from GlaxoSmithKline.

↑ **Some transplants do not work as well as expected**


E-cigarettes may be causing similar lung damage to smoking normal cigarettes

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